

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Tea, Coffee and like Infusion Apparatus

I, FRANZ REINHOLZ, of German nationality, of 117, Grilneburgweg, Frankfurt a/Main, Germany, do hereby declare the nature of this invention and 5
6 in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to a device for 10 making beverages such as coffee, tea and other vegetable extracts, and enables an accelerated infusion to be obtained without the extraction of substances which are deleterious and undesirable from the point 15 of view of aroma.

In order to make beverages, such as coffee, the crushed material, for example ground coffee beans, was hitherto exposed to the action of boiling liquids, which were 20 either poured over them or forced through them under pressure, or they were brewed in so-called percolators.

The pouring of boiling or even hot liquids over the cold or at least not 25 sufficiently preheated substance such as ground coffee, in many cases causes a kind of shock under which the portions of the plants cells which contain the aromatic substances are so modified, for example by 30 coagulation, that no further infusive action can take place, or that pigments, tannin and vegetable resins are extracted.

Exposure of the substance to be scalded to the action of hot vapours before the 35 extraction proper also causes the aromatic substances to be lost at an undesirably early stage.

It has therefore already been proposed in the case of coffee scalding devices 40 wherein the ground coffee is repeatedly immersed in the boiling liquid by means of an immersible container, to place the container during the heating of the liquid in the lower part of the boiler above the 45 scalding liquid and to immerse the said container with the material to be scalded into the boiling liquid only at the moment when said liquid reaches boiling point. For this purpose immersible containers 50 for ground coffee have also been provided with bottom and side walls in the form of strainers, the bottom strainer being closed against the rising vapours by means of

movable flaps. However, such an arrangement has the 55 drawback that said movable closing flaps develop a certain amount of play in course of time and in addition easily lead to increased soiling.

These drawbacks are eliminated by 60 means of a device according to the invention, which consists of a device for making infusions, such as coffee and the like vegetable extracts, consisting of a 65 container for heating the scalding liquid and a receptacle for the substance to be scalded arranged in the interior thereof, said receptacle being arranged above the level of the scalding liquid and adapted to be immersed in said liquid by means of 70 suitable conveying members, in which the container for the substance to be scalded is caused to lie with its closed bottom wall 75 tightly in or against a partition wall located in the upper part of the device and provided with a suitable recess and is provided with side strainer walls inwardly displaced so as to facilitate a percolating of the scalding liquid through the substance to be scalded when the latter is immersed and rotated in the scalding liquid.

The drawings illustrate a constructional 80 form of the device according to the invention, in which,

Figure 1 illustrates a longitudinal section of a scalding device as intended for 85 domestic use, in a position ready for use.

Figure 2 illustrates the container for 90 retaining and centrifuging the vegetable substance.

Referring to the drawings, *a* is the 95 scalding container in the form of a longitudinal cylinder closed by a domed cap *b* having a relief valve *c*. The domed cap *b* carries in a cylindrical extension *d*, the tubes *e* and *f*. By means of the crank *h* and a right-angle drive *g*, the tube *f*, the lower part of which carries an external worm thread *i*, is caused to rotate. The 100 tube *f* moves within the tube *k* formed with a longitudinal slot *l*. The container *m* for the substance to be scalded, is in the form of a parallelogram box slidable on the tube *k* and with the exception of the 105 two perforated side walls *n* is closed. The

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perforated side walls *n* are inwardly displaced so as to form a parallelogram with the two remaining sides.

The sleeve *o* passes through the filling 5 chamber of the container *m* which is closed by the cap *p*, and the bottom wall of the container is provided with angle headings *q* which engage from below with the flanges *r* of the partition wall *s*. On the 10 underside of the bottom *t* of the container *m* there is for example riveted a U-shaped frame *u* carrying the fixed pin *v* and a pin *w* which is resiliently movable in the outward direction.

15 The pin *v* engages with the longitudinal slot *l* in the tube *k*, whilst the resilient pin *w* snaps into the worm thread *i* of the tube *f*. A draw-off cock *x* is fitted at the bottom 20 of the scalding chamber *a*. The ball valve *c* at the top of the tube *e* is enclosed by the dome and can be opened or shut by means of the cap *y*.

The device operates in the following manner:

25 When the receptacle *m* for the substance to be scalded, for example ground coffee beans, has been filled through the filler opening and closed by means of the cap *p* it is raised so as to engage from below 30 with the tube *k* and is held tightly against the partition wall *s* of the container *a* by means of the cam *m*¹ and the spring *d*¹. The container *a* which has previously been filled with water is then heated, for 35 example by means of an electrical heating device located in the pedestal *a*¹, or by a spirit flame or the like. The water vapour generated impinges upon the underside of the container *m* and when the water 40 reaches boiling point, the crank *h* is rotated, so that the container is moved downwardly by means of the pin *w* engaging with the worm thread *i* of the rotating tube *f*, and cam *m*¹ disengaging 45 from the spring *d*¹, but the container is prevented from rotating owing to the pin *v* sliding in the slot *l*.

The container is allowed to move downwardly until the pin *v* leaves the slot *l* and 50 the pin *w*, being then at the end of the worm thread *i*, allows the container to rotate. In this manner the container is rotated at any desired speed within the 55 boiling liquid, so that the substance in the container is thoroughly infused by the extracting liquid. When this infusion has taken place the crank *h* is rotated in the opposite direction so that the container is raised, sliding upwardly as soon as the 60 pin *v* engages with the slot *l*, until the container reaches its initial position.

Excess pressure, if any, can easily be eliminated by means of the relief valves.

The constructional form of the device 65 hereinbefore described may be modified in

many directions. For example, the container for the substance to be scalded may be so arranged that it can be withdrawn from the device when the latter has been opened at the top. The driving 70 mechanism may be totally enclosed, and several devices may be so interconnected that the exhaust steam from the one may be used for preheating the substance to be scalded in the next following device and 75 so on.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim 80 is:

1. A device for making infusions, such as coffee and the like vegetable extracts, consisting of a container for heating the scalding liquid and a receptacle for the 85 substance to be scalded arranged in the interior thereof, said receptacle being arranged above the level of the scalding liquid and adapted to be immersed in said liquid by means of suitable conveying members, in which the container for the substance to be scalded is caused to lie with its closed bottom wall tightly in or against a partition wall located in the 90 upper part of the device and provided with a suitable recess and is provided with side strainer walls inwardly displaced so as to facilitate a percolating of the scalding liquid through the substance to be scalded when the latter is immersed and rotated in 95 the scalding liquid.

2. A device according to claim 1, in which the container for the substance to be scalded is guided along a tube having a longitudinal slot and encasing a driving 105 tube.

3. A device according to claim 2, in which the driving tube is provided with a worm thread.

4. A device according to claim 2 or 3, in 110 which the driving tube is rotated by means of a crank drive.

5. A device according to claims 2 and 3, in which the container is guided along the tube provided with a longitudinal slot, by 115 means of a fixed pin mounted on the container and engaging in said slot and is drawn downwardly by means of a resiliently mounted pin arranged below the fixed pin and engaging through the 120 slot with the worm thread on the driving tube.

6. A device as in claim 1, in which the container (*m*) for the substance to be scalded is guided along a tube (*k*), having 125 a longitudinal slot (*l*) and encasing the driving tube (*f*), by means of a fixed pin (*v*) engaging in said slot (*l*), and is drawn downwardly by means of a pin (*w*) arranged below the pin (*v*) and engaging 130

through the slot (l) with the worm thread (i) of the tube (f), which latter is rotated by means of the crank drive (h, g) until the pin (v) is disengaged from the slot (l) 5 wherenupon the container (m) is entrained and rotated by means of the pin (w) which has then reached the end of the worm thread (i).

7. A device for making infusions sub-

stantially as hereinbefore described with reference to the accompanying drawings. 10

Dated this 30th day of November, 1938.
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Agents for the Applicant.

[This Drawing is a reproduction of the Original on a reduced scale.]

